IN THE CLAIMS:

Claims 24-26 and 28-31 have been amended herein. Claims 34-37 have been added. Claims 1-23, 27, 32 and 33 have been canceled. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1-23. (Canceled)

24. (Currently Amended) A method for manufacturing a microelectrophoresis chip, ~~said chip comprising a substrate having formed therein at least one separation channel for performing separation formed on a first major surface, at least two electrodes disposed within the channel to induce an electric field within the channel, a homogeneous separation medium comprising water soluble fullerences effective to act as obstacles to migration of biopolymers in a sample applied to the microelectrophoresis chip and in that the microelectrophoresis chip further comprises a detector element disposed on the chip for observation of migrating biopolymers, wherein the method comprises the steps of~~comprising:

(a) forming a mold using lithography, ~~said~~ the mold being the reverse of a desired pattern of one or more channels ~~and separators~~, each channel having a central region between two edges;

(b) casting or imprinting the channels in a polymeric substrate as a negative impression replica of the mold;

(c) fusing the polymeric substrate with the channels formed therein to a solid support;

(d) forming a plurality of ~~at least two~~ electrodes within each channel, wherein at least one cathode or anode~~; and~~ is disposed in the central region of a channel.

~~(e) filing each channel with a homogeneous separation medium.~~

25. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein ~~the~~ each ~~separation~~ channel is from 1 to 10μm in depth.

26. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein the chip has a plurality of ~~separation~~ channels.

27. (Canceled)

28. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein the plurality of anodes and the plurality of cathodes are disposed to generate electric fields in at least two non-parallel directions.

29. (Currently Amended) A method for manufacturing a microelectrophoresis chip, ~~said chip comprising a substrate having formed therein at least one separation channel for performing separation formed on a first major surface, at least two electrodes disposed within the channel to induce an electric field within the channel, a homogeneous separation medium comprising self-assembling dendrimers effective to act as obstacles to migration of biopolymers in a sample applied to the microelectrophoresis chip and in that the microelectrophoresis chip further comprises a detector element disposed on the chip for observation of migrating biopolymers, wherein the method comprises the steps of~~comprising:

(a) forming a mold using lithography, ~~said~~ the mold being the reverse of a desired pattern of one or more channels ~~and separators~~, each channel having a central region between two edges;

(b) casting or imprinting the channels in a polymeric substrate with a first major surface as a negative impression replica of the mold;

(c) fusing the polymeric substrate with the channels formed therein to a solid support;

(d) forming a plurality of ~~at least two~~ electrodes within each channel, wherein at least some anodes or cathodes~~; and~~ are disposed in the central region of a channel such that the electrodes can generate electric fields in at least two non-parallel directions within a plane parallel to the first major surface of the substrate.

~~(e) filling each channel with a homogeneous separation medium.~~

30. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 29, wherein ~~the~~ each separation channel is from 1 to 10μm in depth.

31. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 29, wherein the chip has a plurality of separation channels.

32. (Canceled)

33. (Canceled)

34. (New) The method for manufacturing a microelectrophoresis chip according to claim 24, further comprising filing each channel with a homogeneous separation medium including water soluble fullerenes.

35. (New) The method for manufacturing a microelectrophoresis chip according to claim 24, further comprising filing each channel with a homogeneous separation medium including self-assembly dendrimers.

36. (New) The method for manufacturing a microelectrophoresis chip according to claim 29, further comprising filing each channel with a homogeneous separation medium including water soluble fullerenes.

37. (New) The method for manufacturing a microelectrophoresis chip according to claim 29, further comprising filing each channel with a homogeneous separation medium including self-assembly dendrimers.